Perfluorovinylhalophosphines

77300
SOV/63-4-6-34/37

or φ-alkenylphosphinous acid. For example, tetraethylidiamide of perfluorovinylphosphinous acid bp 85-90° C at 11 mm; n_D^{20} 1.4470) was obtained in 53.6% yield in the reaction:

$$CF_2{=}CFMgI + ClP[N(C_2H_5)_2]_2 \longrightarrow CF_2{=}CFP[N(C_2H_5)_2]_2 + MgClI$$

Similarly, diethylamide of bi-(trifluorovinyl)-phosphinous acid (bp 60° C at 25 mm; n_D^{20} 1.4098) was obtained in 37.5% yield on redistillation of fraction 49-53° C received in the reaction:

$$2CF_2{=}CFMgI + Cl_2PN(C_2H_5)_2 \longrightarrow (CF_2{=}CF)_2PN(C_2H_5)_2 + 2MgClI$$

The fractional distillation must not be carried to completion as the residue decomposes explosively. It was shown further that amides of the type $R'P(NR_2)_2$ are decomposed by dry HCl and form primary and secondary

Card 2/4

chlorophosphines. Decomposition of perfluorovinylphosphinous tetraethyldiamide with dry HCl gave perfluorovinyldichlorophosphine (yield 66%; bp 81.5-82° C; n_D^{19} 1.4412):

$$CF_2{=}CFP\left[N(C_2H_5)_2\right]_2 + 4HCl \longrightarrow CF_2{=}CFPCl_2 + 2(C_2H_5)_2NH\cdot HCl$$

Similarly, the decomposition of di-(trifluorovinyl)-phosphinous diethylamide gave di-(trifluorovinyl)-chlorophosphine (yield 60%; bp 94-95° C; n_D^{28} 1.4095; $(CF_2{=}CF)_2PCl$). Also ethyldichlorophosphine ($C_2H_5PCl_2$) was synthesized. The first two chlorophosphines in reaction with antimonous fluoride were transformed into the corresponding perfluorovinylfluorophosphines, colorless liquids easily flaring up in air. Perfluorovinyldichlorophosphine thus gave perfluorovinyldifluorophosphine (yield 64%; bp 2-3° C):

Perfluorovinylhalophosphines

77300
SOV/63-4-6-34/37

$$3CF_2=CFPCl_2 + 2SbF_3 \longrightarrow 3CF_2=CFPF_2 + 2SbCl_3$$

Similarly, di-(trifluorovinyl)-chlorophosphine gave di-(trifluorovinyl)-fluorophosphine $(CF_2-CF)_2PF$ (yield 50%; bp 63-65° C). There are 3 references, 1 U.K., 1 German, 1 Soviet. The U.K. reference is: F. Bennett, H. Emeleus, R. Haszeldine, J. Chem. Soc., 1953, p 1565.

SUBMITTED: June 1, 1959

Card 4/4

5 (3)

AUTHORS: Sterlin, R. N., Li-Wei-Kang, Knunyants, I. L.

SOV/62-59-8-37/42

TITLE: Perfluorodivinyl Mercury

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, p 1506 (USSR)

ABSTRACT: It is reported that perfluorodivinyl mercury (C_4F_6Hg) was obtained from perfluorovinyl magnesium iodide and mercury chloride in an ether solution at -10-5° as a colorless liquid with a disagreeable odor (slightly soluble in water). C_4F_6Hg reacts rather easily with iodine while perfluorovinyl iodide is formed. The physical properties of C_4F_6Hg differ considerably from those of the perfluoroalkyl mercury derivatives. These have a high melting point and are easily soluble in water. In comparison to the compounds investigated they are considered to be halogene derivatives of Hg whereas the former are designated vinyl derivatives of mercury in which the pseudohalogenous character of the perfluorovinyl radical is not prominent. There is 1 reference.

Card 1/1

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77072
SOV/62-59-12-16/43

AUTHORS: Sterlin, R. N., Bogachev, V. E., Yatsenko, R. D., Knunyants, I. L.

TITLE: Reactions of Fluoroolefins. Communication 10. Concerning the Dependence of Chemical Properties of Fluoroolefins on Polarity

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdelenie khimicheskikh nauk, 1959, Nr 12, pp 2151-2155 (USSR)

ABSTRACT: 2-Diethylamino-1,2,2-trifluoro-1-bromoethane (I) (bp 58° at 17 mm) was obtained by shaking perfluorovinyl bromide with diethylamine, at room temperature, for 2 hours. On hydrolysis of (I) with water, the diethylamide of fluorobromoacetic acid (bp 93° at 4 mm) was obtained in 85% yield. It was shown that the reaction rate of addition of diethylamine to perfluorovinyl halides increases with increasing polarity of the olefin molecule. Diethylamine reacts vigorously with diethylamide of fluoroacetic acid; it almost fails to react with the diethylamide of chloroacetic acid, and reacts very slowly

Card 1/2

Reactions of Fluoroolefins. Communication 10. Concerning the Dependence of Chemical Properties of Fluoroolefins on Polarity

77072
SOV/62-59-12-16/43

with 2-diethylamino-1,2,2-trifluoro-1-bromo- (or chloro) -ethane. There is 1 figure; 4 tables; and 5 references, 1 German, 1 U.K., 3 U.S. The 4 U.S. and U.K. references are: R. N. Haszeldine, J. Chem. Soc. 4259 (1952), A. Giacomo, R. Swith, J. Am. Chem. Soc. 77, 774 (1954); G. Rigby, H. Schroeder, U.S. pat 2409315 (1946); Hurwitz, W. Miller, Abstracts of Papers 114th Meeting, J. Am. Chem. Soc. 41 (1948).

SUBMITTED: March 31, 1958

Card 2/2

STERLIN, R.N.; PINKINA, L.N.; YATSENKO, R.D.; KNUNYANTS, I.L.

Perfluorovinyl derivatives of arsenic and antimony. Khim.nauka i prom. 4 no.6:800-801 '59. (MIRA 13:8)
(Arsenic compounds)
(Antimony compounds)

STERLIN, R.N.; PINKINA, L.N.; KNUNYANTS, I.L.; NEZGOVOROV, L.F.

Exchange of radicals in the series of perfluoroalkenyl derivatives of magnesiu. Khim.nauka i prom. 4 no.6:809-810 '59. (MIRA 13:8)

(Magnesium organic compounds)
(Radicals (Chemistry))

STERLIN, R.N.; YATSENKO, R.D.; PINKINA, L.N.; KNUNYANTS, I.L.

Perfluorovinylhalophosphines. Khim.nauka i prom. 4 no.6:810-811 '59. (MIRA 13:8)

(Phosphine)

STERLIN, R.N. [translator]; KNUNYANTS, I.L., akademik, red.; VITKOVSKIY, D.P., red.; RABINOVICH, F.V., red.; ZASUL'SKAYA, V.F., tekhn.red.

[Modern experimental methods in organic chemistry] Sovremennye metody eksperimenta v organicheskoi khimii. Pod red. I.L. Knuniantsa. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960. 627 p. (MIRA 14:1)

(Chemistry, Organic--Experiments)

86479

53630 1287, 2209, 1266

S/062/60/000/011/006/016
B013/B078

AUTHORS: Sterlin, R. N., Yatsenko, R. D., Pinkina, L. N., Knunyants, I. L.

TITLE: Perfluoro Derivatives of Nonmetals

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdelenie khimicheskikh nauk, 1960, No. 11, pp. 1991 - 1997

TEXT: The preparation of perfluoro derivatives of phosphorus, arsenic, and antimony is described. From the reaction of perfluoro vinyl magnesium iodide with $AsCl_3$, PCl_3, and $SbCl_3$ in ether solution only tertiary derivatives were obtained: tri-(trifluorovinyl)arsine, tri-(trifluorovinyl)phosphine, and tri-(trifluorovinyl)stibine. Primary and secondary derivatives were not formed in this process. Perfluorovinyl dichloroarsine was obtained by splitting 10-alkyl-5,10-dihydrophenarsazine with dry HCl (Ref.4). A corresponding perfluorovinyl derivative was obtained in a quantitative yield as a result of the reaction of perfluorovinyl magnesium iodide with adamsite. Perfluorovinyl chloroarsine was

Card 1/3

86479

Perfluoro Derivatives of Nonmetals

S/062/60/000/011/006/016
B013/B078

isolated in a practically quantitative yield by the reaction of $CF_2=CFAs(C_6H_4)_2NH$ with liquid HCl. By treating the tetraethyldiamide of phosphorous acid chloride and the tetraethyldiamide of ethyl phosphinic acid with dry, gaseous HCl in xylol solution, phosphorus trichloride, and ethyldichlorophosphine, respectively, were obtained. From the reaction of perfluorovinyl magnesium iodide with the tetraethyldiamide of phosphorous acid chloride, the tetraethyldiamide of perfluorovinyl phosphinic acid was obtained. This was converted into trifluorovinyl dichlorophosphine by reaction with dry HCl in ether solution. By treating the latter with antimony trifluoride, perfluorovinyl difluorophosphine was obtained. In a similar manner, the diethylamide of di-(trifluorovinyl) phosphinic acid was obtained from $(C_2H_5)_2NPCl_2$ and perfluorovinyl magnesium iodide. By decomposing it with dry HCl, di-(trifluorovinyl)chlorophosphine was synthesized. By treating the latter with antimony trifluoride, di-(trifluorovinyl)fluorophosphine was obtained. As opposed to the trifluoromethyl derivatives of arsenic and phosphorus, the prepared tri-(trifluorovinyl) arsine and tri-(trifluorovinyl)phosphine do not

Card 2/3

86479

Perfluoro Derivatives of Nonmetals

S/062/60/000/011/006/016
B013/B078

separate trifluoroethylene when heated. Thus, the perfluorovinyl radical in the said compounds does not show any properties of pseudohalogens. Ye. P. Shcherbina and L. F. Razgovorov assisted in this work. There are 8 references: 2 Soviet.

SUBMITTED: June 4, 1959

Card 3/3

STERLIN, R.N.; LI VEY-GAN; KNUNYANTS, I.L.

Reactions of perfluorodivinylmercury. Zhur.VKHO 6 no.1:108-109 '61. (MIRA 14:3)

(Mercury)

STERLIN, R.N.; DUBOV, S.S.; LI VEY-GAN; VAKHOMCHIK, L.P.; KNUNYANTS, I.L.

Certain regularities in the series of perfluorovinyl derivatives of the elements of groups IV and V of the periodic table.
Zhur.VKHO 6 no.1:110-111 '61. (MIRA 14:3)
(Vinyl compounds)

STERLIN, R.N.; LI VEY-GAN [Li Wei-kang]; KNUNYANTS, I.L., akademik

Electronegativity of the perfluorovinyl radical. Dokl. AN SSSR 140 no.1:137-140 S-O '61. (MIRA 14:9)
(Vinyl compounds)

STERLIN, R.N.; DUBOV, S.S.

Infrared spectra of perfluorovinyl derivatives of elements. Zhur. VKHO 7 no.1:117-118 '62. (MIRA 15:3)
(Vinyl compounds—Spectra)

DUBOV, S. S.; CHELOBOV, F. N.; STERLIN, R. N.

Mass spectrometric study of some vinyl and perfluorovinyl compounds. Zhur. VKHO 7 no.5:585 '62. (MIRA 15:10)

(Vinyl compounds—Spectra)

DUBOV, S.S.; TETEL'BAUM, B.I.; STERLIN, R.N.

Nuclear magnetic resonance of some perfluorovinyl derivatives. Zhur. VKHO 7 no.6:691-692 '62. (MIRA 15:12)
(Vinyl compounds—Spectra)

KNUNYANTS, I.L.; STERLIN, R.N.; TYULENEVA, V.V.; PINKINA, L.N.

Pseudohalide properties of perfluoroalkenyl radicals in esters of perfluoroalkenylphosphinic acids. Izv. AN SSSR. Otd.khim.nauk no.6:1123-1127 Je '63. (MIRA 16:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Phosphinic acid) (Radicals (Chemistry))

1C

L 35069-65 EWT(m)/EPF(c)/EPR/EWP(j)/EWA(c). Pc-4/Pr-4/Ps-4 RPL RM/WW
S/0286/65/000/006/0026/0026
ACCESSION NR: AP5008521

AUTHOR: Gololobov, Yu. G.; Dmitriyeva, T. F.; Soborovskiy, L. Z.; Zinov'yev, Yu. M.; Knunyants, I. L.; Sterlin, R. N.

TITLE: A method for producing alkyltrifluorovinylalkylphosphinates. Class 12, No. 169118

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 6, 1965, 26

TOPIC TAGS: fluorine compound, phosphonic acid, organo metallic compound, mercury organic compound

ABSTRACT: This Author's Certificate introduces a method for producing alkyltrifluorovinylalkylphosphinates. Acid esters of alkylphosphonic acids are interacted with perfluorovinylmercury during heating. The Author's Certificate also covers a modification of this method in which a heating temperature of approximately 100°C is used.

ASSOCIATION: none

SUBMITTED: 20Feb64 ENCL: 00 SUB CODE: GC, OC

NO REF SOV: 000 OTHER: 000

Card 1/1

KNUNYANTS, I.L.; TYULENEVA, V.V.; PERVOVA, Ye.Ya.; STERLIN, R.N.

Pseudophosphonium compounds from triethyl phosphite and perfluoro-olefins. Izv. AN SSSR. Ser. khim. no.10:1797-1801 O '64. (MIRA 17:12)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

VERVEYKINA, A.K., inzh.; KOLCHINSKIY, Yu.L., inzh.; NIKOLAYEVSKIY, Ye.Ye., inzh.; RODIONOVA, N.G., inzh.; RYAPOLOV, A.F., inzh.; SOKOL, I.A., inzh.; STERLIN, S.L., inzh.; EYDEL'MANT, L.B., inzh.; ORLOV, V.M., kand. tekhn. nauk, retsenzent; YURGEL', B.I., inzh., retsenzent; FOKIN, V.Ya., inzh., nauchn. red.; VOLNYANSKIY, A.K., glav. red.; SUDAKOV, G.G., zam. glav. red.; IOSELOVSKIY, I.V., red.; MARKOV, I.I., red.; MEL'NIK, V.I., red.; ONKIN, A.K., red.; STAROVEROV, I.G., red.; TUSHNYAKOV, M.D., red.; CHERNOV, A.V., red.

[Engineering pipelines for industrial enterprises] Tekhnologicheskie truboprovody promyshlennykh predpriiatii. Moskva, Stroiizdat, 1964. 2 v. (MIRA 17:12)

VERVEYKINA, A.K., inzh.; KOLCHINSKIY, Yu.L., inzh.; NIKOLAYEVSKIY, Ye.Ya., inzh.; RODIONOVA, R.G., inzh.; RYAPOLOV, A.F., inzh.; SOKOL, I.A., inzh.; STERLIN, S.L., inzh.; EYDEL'NANT, L.B., inzh.; ORLOV, V.M., kand. tekhn. nauk retsenzent; YURGEL', B.I., inzh., retsenzent; FOKIN, V.Ya., in[redacted] red.; VOLNYANSKIY, A.K. red.; MARKOV, I.I., red.; MEL'NIK, V.I., red.; ONKIN, A.K., red.; STAROVEROV, I.G., red.; TUSHNYAKOV, M.D., red.; CHERNOV, A.V., red.; SUDAKOV, G.G., red.; IOSELOVSKIY, I.V., red.

[Technological pipings in industrial enterprises] Tekhnologicheskie truboprovody promyshlennykh predpriiatii. Moskva, Stroiizdat. Pt.1. 1964. 784 p. (MIRA 18:9)

BOLTUKHIN, A.K.; STERLIN, S.Z.; MUSHTAYEV, A.F.; MOROZOV, I.I.; KUDINOV, V.A.; MONAKHOV, G.A.; AZAREVICH, G.M.; LAPIDUS, A.S.; PROKOPOVICH, A.Ye., redaktor; RZHAVINSKIY, V.V., redaktor izdatel'stva; TIKHANOV, A.Ya., tekhnicheskiy redaktor

[Modernization of knee and column type milling machines; instructions] Modernizatsiia konsol'no-frezernykh stankov; rukovodiashchie materialy. Pod red. A.E.Prokopovicha. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 194 p. (MLRA 10:8)

1. Moscow. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov
(Milling machines)

KRASOV, Anatoliy Pavlovich; TROFIMOV, Arkadiy Alekseyevich; STERLIN, Ya.B., retsenzent; PESKOVA, L.N., red.; BOBROVA, Ye.N., tekhn. red.

[Journal-voucher accounting system on railroads] Zhurnal'no-ordernaia forma ucheta na zheleznykh dorogakh. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 137 p. (MIRA 14:7)
(Railroads—Accounts, bookkeeping, etc.)

"[illegible]" by A. I. Velikiy, [illegible], V. [illegible]

Report presented at the U.N. Atoms-for-Peace Conference, Geneva, 9-13 Sept 1958

BOCHVAR, A.A., akademik, red.; YEMEL'YANOV, V.S., red.; ZVEREV, G.L., red. toma; IVANOV, A.N., red. toma; SOKURSKIY, Yu.N., red. toma; STERLIN, Ya.M., red. toma; PEREVERZEV, V.V., red.; PCHELINTSEVA, G.M., red.; MAZEL', Ye.I., tekhn. red.

[Transactions of the International Conference On The Peaceful Uses of Atomic Energy] Trudy Vtoroy mezhdunarodnoy konferentsii po mirnomu ispol'zovaniyu atomnoy energii, 2d, Geneva, 1958. Izbrannye Doklady inos rannykh uchenykh. Moskva, Izd-vo Glav. uprav. po ispol'zovaniiu atomnoi energ. pri Sovete Ministrov SSSR. Vol.6. [Nuclear fuel and ractor materials] IAdernoe goriuchee i reaktornye materialy. Pod obshchei red. A.A.Bochvara i Emel'ianova V.S. 1959. 702 p. (MIRA 14:10)

1. International Conference on The Peaceful Uses of Atomic Energy. 2d, Geneva, 1958. 2. Chlen-korrespondent AN SSSR (for Yemel'yanov). (Nuclear fuels) (Nuclear reactors—Materials)

STERLIN, Yakov Moiseyevich, kand. tekhn. nauk; VOL'SKIY, A.N., akademik, red.; PANASENKOVA, Ye.I., red.; POPOVA, S.M., tekhn. red.

[Metallurgy of uranium] Metallurgiia urana. Pod obshchei red. A.N.Vol'skogo. Moskva, Gosatomizdat, 1962. 418 p. (MIRA 15:4)

(Uranium--Metallurgy)

1. STERLIN, YE. A.

2. USSR (600)

4. Reels (Textile Machinery)

7. Methods for computing norms for reeling atuomats. Tekst.prom. 12 no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953, Unclassified.

STERLIN, Ye.A., kandidat tekhnicheskikh nauk.

Weavers' work organization. Tekst.prom.16 no.1:10-11 Ja '56.
(Weaving) (MLRA 9:4)

[illegible], V. I. [illegible]

Dissertation: "Generalization of the Influence of Organizational-Technical Factors on Labor Productivity in Cotton Spinning." Leningrad Textile Inst, 11 May 47.

S.: Vechernyaya Moskva, Mar, 1947 (Project #17836)

STERLIN, Yefim Abramovich; ZAMAKHOVSKIY, L.I., retsenzent; DOKHMAN, Ya.A., retsenzent; SEGEL', N.M., redaktor; DMITRIYEVA, N.I., tekhnicheskiy redaktor

[Principles of engineering standardization in textile manufacturing] Osnovy tekhnicheskogo normirovaniia v tekstil'nom proizvodstve. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po legkoi promyshl., 1957. 177 p. (MLRA 10:10)

(Textile industry)

STERLIN, Ye.A., dots., kand.tekhn.nauk

Division of labor on automatic looms. Tekst. prom. 18 no.6:7-8 Je '58. (MIRA 11:7)

(Looms)

GOLUBEV, N., kand.tekhn.nauk; STERLIN, Ye., kand.tekhn.nauk; FEOKTISTOV, M.; BREKHOV, A.; SIMAKIN, V.; KOZLOVA, L., tkachikha; NIKONOVA, K.; CHERTKOV, L.; SLUTSKIN, S.; MINAYEV, I., inzh.

Introducing a new organization of work; letter to the editor. Tekst.prom. 19 no.12:18 D '59. (MIRA 13:3)

1. Direktor Novo-Tkatskoy fabriki Glukhovskogo kombinata imeni V.I.Lenina (for Feoktistov). 2. Zaveduyushchiy 1-y tkatskoy fabrikoy kombinata "Vozhd' proletariata" (for Brekhov). 3. Nachal'nik tkatskogo proizvodstva fabriki im.M.V.Frunze (for Simakin). 4. Fabrika im. Frunze (for Kozlova, Nikonova). 5. Zaveduyushchiy normativno-issledovatel'skoy laboratoriyey po trudu fabriki im. M.V.Frunze (for Chertkov). 6. Zaveduyushchiy normativno-issledovatel'skoy laboratoriyey ramenskogo kombinata "Krasnoye Znamya" (for Slutskin).
(Weaving)

STERLIN, Yefim Abramovich; POBEDIMSKIY, G.V., retsenzent; CHERTKOV, L.Ya., retsenzent; ZAMAKHOVSKIY, L.I., spets.red.; KOPELEVICH, Ye.I., red.; SHAPENKOVA, T.A., tekhn. red.

[Establishment of production norms in cotton spinning] Tekhnicheskoe normirovanie v khlopkopriadenii. Moskva, Izd-vo nauchno-tekhn.lit-ry RSFSR, 1961. 257 p. (MIRA 14:12)
(Cotton manufacture—Production standards)

MEFRLI., Yefim Abramovich; [illegible]SKIY, G.V., retsenzent; [illegible]OVA, V.Ye., red.

[Work organization and the establishment of work norms for those who work at several machine tools in the textile industry] Organizatsiia i normirovanie truda mnogostanochnikov v tekstil'noi promyshlennosti. Moskva, Izd-vo "Legkaia industriia," 1964. 197 p. (MIRA 17:7)

[illegible], Ye.[illegible], kand. tekhn. nauk, dotsent

Concerning the scientific organization of the work of women spinning machine operators. Tekst. prom. 25 no.10:1-4 O '65. (MIRA 18:10)

1. Khersonskiy filial Odesskogo tekhnologicheskogo instituta imeni Lomonosova.

STERLIN, Ye.N.

Role of chronic bacterial carrier states in the pathogenesis of sporadic typhoid fever cases. Zhur. mikrobiol., epid. i immun. 40 no. 8:134-137 Ag '63. (MIRA 17:9)

1. Iz Moskovskogo instituta vaktsin i syvorotok imeni Mechnikova.

POZHARSKIY, B.G.; STERLINGOVA, T.N.; PETROVA, A.Ye.

Hydrolysis and complex formation of uranyl in mineral acid solutions. Zhur. neorg. khim. 8 no.7:1594-1611 Jl '63. (MIRA 16:7)

(Uranyl compounds) (Hydrolysis)
(Acids, Inorganic)

YAKOVLEV, Yu. V.; STERLINSKI, S.

Determination of contaminations in pure phosphorus by means of neutron activation, using X-ray spectrometry. Nukleonika 7 no.3: 141-151 '62.

1. Institut geokhimii i analiticheskoy khimii AN SSSR, Dubna (for Yakovlev).

2. Institut yadernykh issledovaniy, PAN, Varshava, Otdeleniye analiticheskoy khimii (for Sterlinski).

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67357

POL/45-18-6-3/5

AUTHORS: Sosnowski, R., Sterliński, S., Topa, J., Żylicz, J.

TITLE: Isomeric Transition in Hg^{199}

PERIODICAL: Acta Physica Polonica, 1959, Vol 18, Nr 6, pp 573-580 (Poland)

ABSTRACT: It was the aim of the present paper to investigate the spectrum of internal conversion electrons for the isomeric transition in Hg^{199} from the $i_{13/2}$ to the $f_{5/2}$-level. This 370-kev transition was investigated under conditions, which permitted measurement of the ratio K/L and to estimate the E5 contribution. L.A.Sliv and A.M.Band had estimated the E5 admixture to 90%. Preparation of the Hg^{199} source is briefly described and shown in figure 1. For measurement of the internal conversion electron spectra, a magnetic spectrometer with a thick lens was used. A G-M counter of the BAT-10 type with a mica window (1.3 mg/cm^2) served as detector. The spectrometer had a resolution of 3.3%, the counting background did not exceed 3 counts/min; the electron absorption in the window was negligibly small. Measuring results are shown in several

Card 1/2

Isomeric Transition in Hg^{199}

67357
POL/45-18-6-3/5

diagrams. They show good agreement with those calculated theoretically for M4 transition in consideration of the finite nuclear dimensions and nuclear field shielding by the electron shell. The authors obtained: K:L(M+N) = 1:(0.57±0.09): :(0.12±0.07). The mixture ratio of M4 to E5 is shown in figure 7. The maximum E5 admixture is found not to exceed 11%, which is in agreement with what was found by Pound and Wertheim. The authors finally thank Professor A. Soltan for his advice during construction of the spectrometer and for his keen interest. There are 7 figures and 13 references, 4 of which are Soviet.

ASSOCIATION: Institute of Nuclear Research, Polish Academy of Science, Warsaw

SUBMITTED: April 25, 1959

Card 2/2

pulse-height analyzer. The two photoelectric peaks in the gamma spectrum corresponding to the 605 keV and 797 keV lines of Cs^{134} were used in the analysis; the identification of the lines was in addition verified by comparing the ratios of the areas under the peaks and measuring the rate of decay. The feasibility of the quantitative analysis was tested using samples of synthetic NaCl containing a known amount of CsCl, and the figure 2×10^{-3} ppm of Cs is quoted as the lowest amount which could be determined by this method under given conditions of activation and in the absence of any other long-lived impurity. It is pointed out that changes of the neutron flux in the reaction during the process of activation may produce an appreciable uncertainty of the results. There are 6 figures and 1 table.

ASSOCIATION: Instytut Badań Jądrowych PAN, Warszawa, Zakład Chemii Analitycznej (Institute of Nuclear Research, PAS Warsaw, Department of Analytical Chemistry)

SUBMITTED: August, 1962

L 13141-63 BDS/EWT(m) AFFTC/ASD P/046/63/008/001/003/004

51
50

AUTHOR: Sterliński, Sławomir

TITLE: Optimal irradiation and measurement conditions in an activation analysis. Gamma-spectrometric determination of trace contamination in the presence of active matrix.

PERIODICAL: Nukleonika, v. 8, no. 1, 1963, 57-67

TEXT: The aim to reduce analytic activities in an activation analysis leads to a gradual reduction of chemical operations and to optimum utilization of gamma-spectroscopic method. This method is limited by the fact that certain matrices are activated during the irradiation of the sample. Active matrices render the application of the gamma-spectroscopic method to direct sample analysis impossible. In this paper, gamma-spectroscopic determination of trace amounts of the element in presence of active matrix is considered. Formulae for relative statistical fluctuation of the number of counts due to the trace amount is offered. On the basis of these formulae optimal irradiation and measurement conditions are described. Several graphs illustrating the mathematical problem are included.

Card 1/2

Association: Nuclear Research Institute

STERLINSKI, Slawomir

Influence of the analyzer channel width on the shape of the photopeak of a monoenergetic gamma line. Nukleonika 8 no.10: 709-712 '63.

1. Department of Analytical Chemistry, Institut of Nuclear Research, Warsaw 9.

YURKIEWICZ, Leopold [Jurkiewicz, Leopold], STERLINSKI, Slovomir [Sterlinski, Slawomir]

Optimum time of activity measurement in the presence of an unknown background. Pt. 1. Nukleonika 9 no.9:697-703 '64.

1. Institute of Nuclear Research, Krakow Branch no.6 (for Jurkiewicz). 2. Institute of Nuclear Research, Polish Academy of Sciences, Warsaw (for Sterlinski).

L 21912-66 EWT(m)/EPF(n)-2

ACC NR: AP6014464 SOURCE CODE: PO/0046/65/010/011/0641/0659

AUTHOR: Sterlinski, Slawomir

ORG: Analytical Chemistry Department, Institute of Nuclear Research, Warsaw-Zeran

TITLE: Method for simultaneous counting of source and background for short-lived radioisotopes near the determination limit

SOURCE: Nukleonika, v. 10, no. 11, 1965, 641-659

TOPIC TAGS: scintillation spectrometer, radioisotope

ABSTRACT: The problem of simultaneously counting source and background radiations when determining trace amounts of short-lived radioisotopes by gamma scintillation spectrometry is discussed. In the case of time-consuming measurements (of the order of hours) the evaluation of the background on the basis of its counting in another time interval may prove to be false because of daily fluctuations. The error due to this may be in many cases eliminated by estimating background under a given photoelectric peak on the basis of the number of counts measured within another energy range of the spectrum. A method of estimating background within a measuring range is presented, the variance of the estimation is calculated, and a condition is pointed out under which the optimum (the minimum) relative accuracy is attained. The author thanks Mrs. Marecka and Mr. Kowalski for carrying out numerical calculations. Orig. art. has: 7 figures and 31 formulas. [NA]

SUB CODE: 18 / SUBM DATE: 21Jun65 / ORIG REF: 004 / OTH REF: 015
SOV REF: 003

Card 1/1

ACC NR: AT7002371 SOURCE CODE: PO/0026/66/011/006/0441/0453

AUTHOR: Szerlinski, S.

ORG: Department of Analytical Chemistry, Institute of Nuclear Research, Warsaw-Poland

TITLE: Lower limit of detection for short-lived radioisotopes [Paper presented in part at the Conference on "Application of Physico-Chemical Methods in Chemical Analysis" held in Budapest from 20 to 23 April 1966]

SOURCE: Nukleonika, v. 11, no. 6, 1966, 441-453

TOPIC TAGS: radioisotope, radioactivity measurement

ABSTRACT: The relation of the "lower limit of detection" for short-lived radioisotopes and the measurement time and the so-called "merit of the detector" was studied. It was found that the limit of detection reaches a minimum for the measurement time 1.61 $T_{\frac{1}{2}}$ (if the condition 1, where k_B is the observed number of counts of background, is fulfilled). The numerical value of the "lower limit of detection" can be calculated according to the included formulas. The theoretical conclusions are illustrated by two experiments using the radioisotopes ^{66}Cu ($T_{\frac{1}{2}}$ = 5.1 min) and ^{52}V ($T_{\frac{1}{2}}$ = 3.75 min). The author thanks Professor J. Minczewski for offering the possibility of studies on this subject, Professor L. Jurkiewicz (deceased) and Dr. R. Dybczynski for their discussions and remarks on this work, and Professor S. Siekierski for enabling the use of a neutron source. The author also thanks Miss M. Helbing, Miss T. Kolesnik and Mr. J. Kowalski for their assistance in the measurements and calculations.

Card 1/2 0925 0673

L 09288-67
ACC NR: AP7002371

[Orig. art. in Eng.] Orig. art. has: 6 figures, 9 formulas and 2 tables. [NA]

SUB CODE: 18 / SUBM DATE: 14Jan66 / ORIG REF: 003 / SOV REF: 001 / OTH REF: 014

ACC NR: AP7010679 SOURCE CODE: PO/0046/66/011/07-/0533/0553

AUTHOR: Szerlinski, Slawomiri; Dybczynski, Rajmund--Dybchinski R.

ORG: Department of Analytical Chemistry, Institute of Nuclear Research, Warsaw

TITLE: Determination of cesium traces in mineral salts by means of neutron activation-ion exchange chromatography method

SOURCE: Nukleonika, v. 11, no. 7-8, 1966, 533-553

TOPIC TAGS: cesium, neutron activation analysis, ion exchange chromatography, isomer, chromatographic analysis, alkali metal, trace analysis

SUB CODE: 07,18

ABSTRACT: A neutron activation-chromatographic method for the determination of traces of cesium that makes use of the short-lived isomer ^{134m}Cs is presented. Cesium was isolated from macro amounts (0.5 g sample) of lighter alkali metals on the column with MK-3 cation exchanger (phenolsulfonic resin) before irradiation. After irradiation this cesium fraction was further purified from interfering activities by multistep ion exchange chromatography on micro-columns involving both cation and anion exchangers. The activity of the 31-keV photopeak was measured by gamma-spectrometric techniques using a very thin NaI(Tl) crystal. The precision of the method (defined in terms of three standard deviations) was

Card 1/2

0930 2567

ACC NR: AP7010679

better than 12%. The sensitivity amounted to 4×10^{-11} g Cs, i.e., 8×10^{-90}%. The method was shown to be fully applicable to the analysis of various mineral salts. The authors thank Mr. J. Kowalski for help in making the ion exchange separation, and Mr. R. Henrych for construction of the drop counter. Orig. art. has: 9 figures and 3 tables. [Orig. art. in Eng.] [NA]

Card 2/2

STERLKOV, S. Ya.

Sterlkov, S. Ya. - "The clinical treatment and therapy of firearm wounds in the chest and their complications", Trudy Medinstituta (Izhev. gos. med. in-t), Vol. VI, 1949, pp. 44-4.

SO: L-4117, 17 July 53, (Letopis 'Zhurnal'nykh Statey, No. 19, 1949).

KAL'YU, P.I.; LOGINOVA, Ye.A.; ILYIN, S.Ye.; MATSKO, B.M.; STARL'MAKH, O.N.
(Moskva)

Structure and level of attendance of the rural population at medical and therapeutic institutions. Sov. zdrav. 20 no.7:17-22 '61.
(MIRA 15:1)

1. Iz Instituta organizatsii zdravookhraneniya i istorii meditsiny imeni N.A.Semashko Ministerstva zdravookhraneniya SSSR.
(PUBLIC HEALTH, RURAL)

[redacted]

STERLIGOV, O. D.

PLATE, A. G., STERLIGOV, O. D. and BAZHULIN, I. A. CA: 38-4594/2
(Moscow State Univ., and Physical Inst., Acad. of Sci.)
J. Gen. Chem. (USSR) 14, 955-9 (1944) - English summary
Hydrocarbons of the cyclopentane series with a side-chain double bond.
4-cyclopentyle-2-butene and 3-cyclopentyl-1-butene.

[redacted]

STERLYADKIN, N.

Meat industry of Amur Province. Mias.ind. SSSR 24 no.6:39-40 '53. (MLRA 6:12)

1. Upravlyayushchiy Amurskim myasotrestom.
(Amur Province--Meat industry) (Meat industry--Amur Province)

STERLYADKIN, N.

Increasing the productive capacities. Mias.ind.SSSR 31 no.1: 30 '60. (MIRA 13:5)

1. Direktor Biyskogo myasokombinata.
(Biysk--Packing houses--Equipment and supplies)

L 10658-63
EWP(q)/EWT(m)/BDS--AFFTC/ASD--JD/JXT(IJP)

ACCESSION NR: AP3001211 S/0078/63/008/006/1314/1319

60
58

AUTHOR: Mikheyeva, V. I.; Sterlyadkina, E. K.; Konstantinova, A. I.; Kryukova, O. N.

TITLE: Absorption of hydrogen by alloys of cerium with magnesium

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 6, 1963, 1314-1319

TOPIC TAGS: absorption; hydrogen; alloys; cerium; magnesium

ABSTRACT: Hydrogen absorption by cerium-magnesium alloys was investigated: alloys having more than 50 atm % Mg did not hydrogenate at room temperature; in alloys containing up to 30% Mg, the Ce appears to be preferentially hydrogenated; in the 30-50% Mg range, absorption corresponds to the formula $CeH_3 \cdot nMgH_2$, in particular, $MgH_2 \cdot 2CeH_3$ and $MgH_2 \cdot CeH_3$. Increase in Mg from 0-50% increases the induction period and hydrogenation time. If reaction is carried out at elevated temperature, alloys having up to 66% Mg can be hydrogenated but amount of H absorption is decreased. According to chemical and thermographic examination, the hydrogenation products are mechanical mixtures of the hydrides whose properties are distinct from those of MgH_2 and CeH_3 taken separately. Orig. art. has: 4 figures and 2 tables.

Card 1/2

L 10658-63

ACCESSION NR: AP3001211

2

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova, Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences, SSSR) Laboratoriya khimii gidradov i bora (Laboratory of Hydrides and Boron Chemistry)

SUBMITTED: 06Jul62 DATE ACQD: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 006 OTHER: 007

kes

Card 2/2

L 13501-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003482 S/0078/63/008/007/1710/1714

AUTHOR: Mikheyeva, V. I.; Sterlyadskhina, E. K.; Chertov, A. A.

TITLE: Hydrogenation of aluminum-cerium alloy

59
57

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 7, 1963, 1710-1714

TOPIC TAGS: aluminum, cerium alloy, hydrogen, hydrogenation

ABSTRACT: Authors studied hydrogen absorption by cerium during its alloying with aluminum. Reason for this study was the marked absorption of hydrogen by cerium-magnesium alloy, characterized for a number of cases by whole and multiple proportions of CeH sub 3 to MgH sub 2. Metallic cerium, 99.9% pure aluminum and hydrogen which was obtained by the pyrolysis of titanium hydride, were used as materials in the study. The alloys were hydrogenated in accordance with the previously-described methodology (Mikheyeva and Kast, Zh, neorgan. khimii, 3, 1958, 260; Mikheyeva et al, Zh, neorg. khimii, 8, 1963, 1320) at room temperature and hydrogen pressure of about 1 atm. The hydrogen content in the hydrogenation products was determined by measuring the hydrogen volume during their reaction with diluted muriatic acid (1 : 5). The hydrogen volume which could be evolved during a reaction with metallic oxides, entering into the composition of the hydrogenation

Card 1/2

L 13501-63

ACCESSION NR: AP3003482

products, was calculated from the overall volume of evolved hydrogen. Authors found that alloying cerium with aluminum increases the induction period and hydrogenation time. The involvement of aluminum in the hydrogenation process was shown by observations over the hydrogenation process and analysis of the properties of the hydrogenation products. The maximum hydrogen absorption by aluminum corresponds to the empirical formula CeH sub 3 times 0.163AlH for an alloy with 14 atm. % of Al. Basically, the hydrogenation products of cerium-aluminum alloys evolve hydrogen in two stages, which, however, is not expressed as clearly as for CeH sub 3. Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences, SSSR). Laboratoriya khimii gidridov i bora (Laboratory of hydride and boron chemistry).

SUBMITTED: 16Aug62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: CH, ML NO REF SOV: 004 OTHER: 008

Card 2/2

L 13500-63 EWP(q)/EWT(d)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3003483 S/0078/63/008/007/1715/1721

AUTHOR: Mikheyeva, V. I.; Sterlyadkina, E. K.; Chertkov, A. A.

60
59

TITLE: Hydrogenation of alloys of cerium with magnesium and aluminum 27

SOURCE: Zhurnal neorganicheskoy khimii, v. 8, no. 7, 1963, 1715-1721

27 27

TOPIC TAGS: cerium, magnesium, aluminum, hydrogenation, alloy

ABSTRACT: Authors studied the effect of aluminum on hydrogen absorption by cerium-magnesium alloys. The hydrogenation zone of Ce-Mg-Al ternary alloys was determined at ordinary temperature and hydrogen pressure somewhat lower than atmospheric. The starting materials were metallic cerium, electrolytic magnesium and metallic aluminum of 99.9% purity. Dry hydrogen was obtained by decomposing titanium hydride which did not require any additional purification. The hydrogenation of the alloys was carried out on apparatus which did not basically differ from that described by Mikheyeva and Kost (Zh. neorgan. khimii, 3, 1958, 260). The hydrogenation zone of alloys in the system Ce-Mg-Al, rich in cerium, was determined at room temperature and normal pressure. It is distributed up to 25 atomic % of aluminum and 70 atomic % of magnesium. The maximum hydrogen absorption in the zone with 5-10% aluminum and 35-60% magnesium. It was shown that alloying melts in the

Card 1/2

L 13500-63
ACCESSION NR: AP3003483

Ce-Mg system with aluminum increases hydrogen absorption. During maximum hydrogenation of cerium to the composition CeH sub 3 and magnesium to the composition MgH sub 2, a part of the hydrogen is absorbed on account of being involved in the aluminum hydrogenation process. The presence of aluminum (5-15%) in alloys with a total content of aluminum and magnesium above 50% sharply reduces the hydrogenation induction period and produces a reaction which is less dependent upon the purity of the hydrogen. Aluminum also effects a lowering in the temperature for decomposing the cerium dihydride from 1080° (for pure dihydride) to 1010°. Orig. art. has: 5 figures and 1 table.

ASSOCIATION: Institut obshey i neorganicheskoy khimii im. N. S. Kurnakova (Institute of General and Inorganic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 14Aug62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: CH, ML NO REF SOV: 008 OTHER: 007

Card 2/2

STERLYADKINA, Ye. K.

STERLYADKINA, Ye. K. "The Absorption by Glass of Radiations in the Infra-Red Portion of the Spectrum at High Temperatures." Min Construction Materials Industry USSR. All Union Sci Res Inst of Glass. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences)

So: Knizhnava Letopis', No. 17, 1956

STERLYADKINA, Z. K. (Aspirant)

"An Investigation of the Volumetric-Structural Fluctuation Connected With Phase Transformations During the Firing of Mullite-Corundum Refractory Material." Cand Tech Sci, Moscow Order of Lenin Chemicotechnological Inst imeni D. I. Mendeleyev, 13 Dec 54. (VM, 2 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

Sterlyadkina, Z. K.

4

10m

Volume-structural changes connected with phase transformations during firing of mullite-corundum refractories. D. N. Polubovarinov, R. Ya. Pupil'skii, and Z. K. Sterlyadkina. *Ogneupory*, 20 [7] 325-25 (1955).—Continuous observations were made of dimensional changes during heating. Practical measures eliminate growth of the mullite-corundum body during temperature rise and increase its capacity for sintering during completion of the firing, the amount of clay should be at a minimum. Filler containing the finest fractions should be sufficient for reaction of mullite formation, primarily with the corundum in these fractions. The mix should be prepared to assure uniform distribution of the finely ground clay component in the finely dispersed filler fraction. Mullite-corundum filler should not be completely sintered. The mix should contain a certain amount of ground alumina with a corresponding decrease in the amount of filler containing the corundum. 1 figure. B.Z.K.

Metals

Moscow Chem-Tech. Inst. im. Mendeleyev

Sterlyadkina, Z. K.

S/078/60/005/008/006/018
B004/B052

AUTHORS: Mikheyeva, V. I., Sterlyadkina, Z. K., Kryukova, O. N.

TITLE: Fusion Diagram of the System Aluminum - Copper - Lithium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 8, pp. 1788-1795

TEXT: The authors first give a survey of the investigations published on the binary systems: Al - Cu (Ref. 3), Al - Li (investigated by F. I. Shamray and P. Ya. Sal'dau, Ref. 4), and Cu - Li (Refs. 5,6), and also a western paper (Ref. 7) on the ternary system. Then follows a description of their own method, the production of melts (analyses on Table 1), the thermal analyses by means of an N. S. Kurnakov pyrometer, and the investigation of the microstructure after etching with a 3 - 5% solution of HNO_3 in alcohol (Fig. 4). The total fusion diagram of the system (up to 75 atom% of Cu+Li) is depicted in Fig. 5, while Fig. 1 gives a section of Al_2Cu - AlLi, Fig. 2 of Al - Cu:Li = 4:1, and Fig. 3 of Al - Cu:Li = 9:1. Table 2 gives the data of the 15 points of the

Card 1/2

Fusion Diagram of the System Aluminum - Copper - Lithium

S/078/60/005/008/006/018
B004/B052

non-variant equilibrium. The system Al - Cu - Li is characterized by the crystallization of two ternary, incongruently melting phases: the S-phase consisting of the compound Al_2CuLi, and the T-phase, whose composition in the homogeneity range approaches the compound Al_6CuLi_3. At 526°C, the ternary eutectic which corresponds to the common crystallization of the solid aluminum solution, also to the θ-phase (Al_2Cu) and the S-phase (Al_2CuLi), has the following composition: 73% of Al, 18.6% of Cu, and 8.4% of Li. All other non-variant points are transitional points. There are 5 figures, 2 tables, and 12 references: 6 Soviet, 2 US, 1 British, 2 German, and 1 Italian.

SUBMITTED: May 27, 1959

Card 2/2

21332

S/078/61/006/004/001/018
B121/B216

11.2222

AUTHORS: Dymova, T. N., Sterlyadkina, Z. K., Safronov, V. G.

TITLE: A method for preparing magnesium hydride

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 4, 1961, 763-767

TEXT: The present work discusses methods for the preparation of magnesium hydride and describes optimum conditions for a rapid and efficient preparation from the elements. Electrolytic magnesium of a purity of 99.3% and electrolytic hydrogen were used as initial materials. The synthesis was carried out in a rotating autoclave at 120-150 rpm, filled to one quarter with steel balls for grinding and mixing the material. The initial hydrogen pressure was 100-200 kg/cm^2. The resulting magnesium hydride was analyzed by measuring the hydrogen volume formed by reaction of magnesium hydride with a 5% solution of chromic anhydride. The reaction sets in at 260-270°C but comes to a stop when about 75% MgH_2 has formed because the magnesium becomes incrusted with the hydride. The yield was increased to 79% by applying a pressure of 200-300 kg/cm^2, increasing

Card 1/4

21332
S/078/61/006/004/001/018
B121/B216

A method for preparing ...

the temperature to 400-450°C and extending the reaction time to 15 hr. A yield of 98% magnesium hydride, leaving less than 1% unreacted magnesium was obtained by using 0.7% iodine as catalyst at a reaction temperature of 380-450°C and continuous grinding of the solid phases during 5-6 hr (Table). The reaction was also carried out by using carbon tetrachloride and a copper-magnesium alloy of the composition Mg_2Cu as activators. Grinding the reagents at 420°C in the presence of 1.5% CCl_4 yielded 85% magnesium hydride after 2 hr, and 100% magnesium hydride after 6 hr. The role of the activators is discussed. It is assumed that in the case of iodine catalyst an intermediate, magnesium subiodide, forms according to the reaction $MgI_2 + Mg = 2MgI$, which then reacts with hydrogen to form magnesium hydride. With carbon tetrachloride as activator, alkyl magnesium chloride is probably formed as well as magnesium subchloride. The authors thank V. I. Mikheyeva for discussion. There are 5 figures, 1 table, and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc.

Card 2/4

S/078/61/006/004/001/018
B121/B216

A method for preparing ...

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR)

SUBMITTED: November 1, 1960

X

Card 3/4

21332

S/078/61/006/004/001/018
B121/B216

A method for preparing ...

Table: Temperature dependence of the magnesium hydride yields obtained by addition of iodine. Legend: 1) Mg in g; 2) reaction conditions; 3) duration in hr; 4) consumption of H_2 in kg/cm^2; 5) percentage in the product; 6) Mg_{met}; 7) calculated H_2 consumption

Mg, г (1)	(2) Выдержка		Расход H_2, кг/см² (4)	Процент содержания в продукте (5)		
	t°, C	длительность, часы (3)		MgH_2	$Mg_{мет}$ (6)	MgO
100	200	5	25*	42,58	52,65	3,77
100	250	4,5	45	70,06	27,07	1,87
100	300	4,5	50	86,56	11,09	1,5
100	350	4,8	55	88,13	7,44	3,43
100	380	5,0	65	96,94	0,72	1,32
200	420—450	6,0	120**	97,19	0,47	2,09
200	390—400	6,0	120**	98,44	0,6	1,5

(7) Расчетный расход H_2: * 60,3 кг/см²; ** 116,3 кг/см².

Card 4/4

21333

S/078/61/006/004/002/018
B121/B216

11.2222

AUTHORS: Dymova, T. N., Sterlyadkina, Z. K., Yeliseyeva, N. G.

TITLE: Some properties of magnesium hydride

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 4, 1961, 768-773

TEXT: The present paper describes the behavior of magnesium hydride towards water and aqueous solutions. The magnesium hydride was prepared from the elements with addition of iodine (T. N. Dymova, Z. K. Sterlyadkina, V. G. Safronov, Zhurnal neorganicheskoy khimii, v. 6. no. 4, 1961, 763-767). [Abstracter's note: See abstract no. S/078/61/006/004/001/018]. This magnesium hydride was found to be comparatively unreactive. Only 56% of the hydride had hydrolyzed after 31 days (Fig. 2). Hydrolysis of magnesium hydride with solutions of sulfuric acid, chromic acid, potassium dichromate, ammonium chloride and cerium sulfate proceeds very rapidly. Treatment with aqueous solutions of sodium chlorate, boric acid, hydrogen peroxide, iodine in potassium iodide, and with slight amounts of cobalt and nickel lead to partial decomposition of magnesium hydride (Table 2). In a mixture of magnesium hydride, magnesium oxide, and metallic magnesium

X

Card 1/5

21333

S/078/61/006/004/002/018
B121/B216

Some properties of magnesium hydride

chromic acid selectively passivates the magnesium and quantitatively dissolves the magnesium hydride and magnesium oxide. A rapid method for determining magnesium hydride- magnesium oxide - magnesium metal mixtures was developed; it consists of measuring the volume of hydrogen liberated in sulfuric- and in chromic acid. The authors thank V. I. Mikheyeva for his valuable advice. There are 4 figures, 2 tables, and 10 references: 3 Soviet-bloc and 7 non-Soviet-bloc.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, Academy of Sciences USSR)

SUBMITTED: November 1, 1960

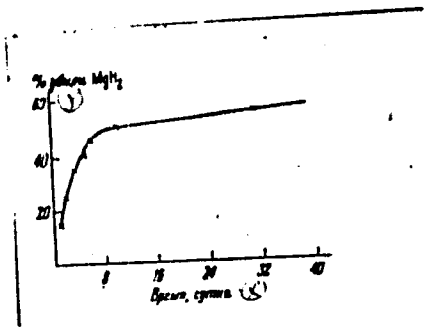
Card 2/5

21333

S/078/61/006/004/002/018
B121/B216

Some properties of magnesium hydride

Fig. 2: Decomposition of magnesium hydride in water. Legend: (x) time in days, (y) percentage of MgH_2 decomposed.



Card 3/5

21333

S/078/61/006/004/002/018
B121/B216

X

Some properties of magnesium hydride

Table 2: Influence of various substances on the hydrolysis of magnesium hydride and metallic magnesium. Legend: 1) substance; 2) concentration in the solution; 3) quantity of hydrogen, ml, liberated by one gram of the substance in 15 min; 4) magnesium; 5) magnesium hydride; 6) average value; 7) no reaction; 8) cobalt salt; 9) nickel salt; 10) traces; 11) ditto; 12) theoretically, quantitative hydrolysis of 1 g of MgH_2 yields 1702.20 ml of H_2 and 1 g of Mg 921.60 ml of H_2.

Card 4/5

21333
S/078/61/006/004/002/018
B121/B216

Some properties of magnesium hydride

Table 2

(1) Вещество	(2) Концентрация растворов	(3) Количество водорода в мл, генерируемое за 15 мин. 1 г вещества					
		(4) магний			(5) гидрид магния		
		1	2	(6) среднее	1	2	среднее
H_2O	—	(7) Реакция не идет			69,13	81,59	75,51
H_2SO_4	1N	916,14	910,70	913,42	1668,35	1650,15	1662,25
NH_4Cl	1N	868,58	841,66	855,09	1643,80	1666,20	1655,00
CrO_3	5%	(8) Реакция не идет			1660,20	1648,80	1654,50
$K_2Cr_2O_7$	5%	(9) Реакция не идет			1633,05	1653,05	1643,16
$KMnO_4$	5%	(10) Реакция не идет					
$(NH_4)_2S_2O_8$	5%	497,24	452,41	474,73	1643,00	1674,00	1658,50
$NaClO_3$	5%	(11) Реакция не идет			108,55	104,41	106,48
$Ce(SO_4)_2$	5%	909,51	902,3	905,90	1660,58	1684,13	1672,35
H_3BO_3	(12) Следы	(13) Реакция не идет			233,79	254,13	248,96
(14) Соли кобальта	(15) То же	(16) То же			514,47	569,2	541,74
(17) Соли никеля	5%	» »			404,00	396,35	400,20
H_2O_2	0,1N	» »			365,78	386,19	375,98
J_2 в KJ	1N	» »			165,33	183,70	174,51
NaOH		(18) Реакция не идет					

(19) Теоретически при полном гидролизе 1г MgH_2 выделяется 1702,26 мл H_2 и 1г Mg — 921,60 мл H_2.

Card 5/5

30029
S/020/61/141/001/013/021
B103/B147

5 2200 1043 1087 1273

AUTHORS: Mikheyeva, V. I., and Sterlyadkina, Z. K.

TITLE: Hydrogenation of cerium-magnesium alloys

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 1, 1961, 104-106

TEXT: Ce-Mg alloys were hydrogenated over a wider range of Mg concentrations than had been done by A. Sieverts and E. Roell (Zs. anorg. Chem., 146, 149 (1925)). Ce containing 0.75% of Nd, 0.4% of Pr, 1.0% of La, and 0.05% of Fe, and refined magnesium with a purity of at least 99.9% were used. The authors produced alloys with a Mg content of up to 85 at %, corresponding to Mg_3Ce, in corundum crucibles under LiCl-KCl flux. They hydrogenated at room temperature and a hydrogen pressure of 0.5 - 1 atm in an apparatus described by M. Ye. Kost, ZhNKh, 2, 2689 (1957). They used both cast and heat-treated samples (which absorb H_2 much faster). H_2 is absorbed by the alloys after an induction period which increases considerably with increasing Mg content, but does not change in parallel with the composition. Samples nos. 13 - 15 (Table 1) could only be hydrogenated after activation by previous heating. Alloys with more than 30% of Mg are split by hydrogenation along the cleavage

Card 1/4

30029 S/020/61/141/001/013/021
B103/B147

Hydrogenation of cerium-magnesium...

flames and can be pulverized to a black powder. Table 1 shows the results. The initial range of the weak effect of Mg on H_2 absorption of Ce is caused by the formation of solid solutions of Mg in Ce. Maximum absorption is reached by alloys having a composition similar to MgCe. Peritectic reactions of formation of MgCe from Mg_2Ce reduce H_2 absorption. This applies even more to alloys richer in Mg which, at room temperature, do not absorb hydrogen either in the initial state or after heat treatment. Up to 5 at% of Mg, Ce-Mg alloys hydrogenated up to saturation behave like CeH_3. From 10 at% of Mg onward, only vigorous pulverization causes inflammation whereas alloys with 30 and more at% of Mg do not react either with air or with water. In thermal decomposition of the hydrogenation product, H_2 is separated in several stages. It is noted that $Mg_mH_{2m}Ce_nH_{3n}$ mixtures can be obtained by hydrogenation of Ce-Mg alloys. These mixtures can be expressed by the formula $MgCeH_5$. Both the method of hydrogenation of Ce-Mg alloys and the properties of the "double hydrides" differ from the hydrogenation of Mg and Ce, and from the properties of CeH_3 and MgH_2, respectively. As to their properties, the products of complete hydrogenation of Ce-Mg alloys (e. g.,

Card 2/4

MgH_2CeH_3 or $MgCeH_5$) take an intermediate position as compared to their constituents CeH_3 and MgH_2. There are 1 figure, 1 table, and 6 references: 4 Soviet and 2 non-Soviet. The reference to the English-language publication reads as follows: F. H. Ellinger, C. E. Holley et al., J. Am. Chem. Soc., 77, 2647 (1955).

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

PRESENTED: April 29, 1961, by I. I. Chernyayev, Academician

SUBMITTED: April 24, 1961

Table 1. Composition of hydrogenation products of Ce-Mg alloys. Legend: (1) Composition of alloys; (2) hydrogen content; (3) number of test; (4) Mg, at%; (5) Mg, % by weight; (6) induction period, min; (7) time of hydrogenation; (8) per g of hydride, milliliters; (9) per g of Ce,

MIKHEYEVA, V.I.; STERLYADKINA, Z.K.; KONSTANTINOVA, A.I.; KRYUKOVA, O.N.

Absorption of hydrogen by alloys of cerium with magnesium. Zhur. neorg. khim. 8 no.6:1314-1319 Je '63. (MIRA 16:6)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR, laboratoriya khimii gidridov i bora.
(Cerium-magnesium alloys)
(Hydrogenation)

MIKHEYEVA, V.I.; STERLYADKINA, Z.K.; CHERTKOV, A.A.

Hydrogenation of cerium alloys with aluminum. Zhur. neorg. khim. 8 no.7:1710-1714 Jl '63. (MIRA 16:7)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova AN SSSR, laboratoriya khimii gidridov i bora. (Cerium-aluminum alloys) (Hydrogenation)

L 34499-65 EWP(e)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD
ACCESSION NR: AP5002795 S/0078/65/010/001/0010/0017

17
16
B

AUTHOR: Sterlyadkina, Z. K.; Kryukova, O. N.; Mikheyeva, V. I.

TITLE: Reaction of potassium borohydride with sulfur
27 27 27 27

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 1, 1965, 10-17

TOPIC TAGS: potassium borosulfide, synthesis, potassium borohydride sulfur reaction, potassium borohydride

ABSTRACT: A thermodynamic study was made of the irreversible reaction of KBH_4 with S occurring upon heating mixtures of 0-100% of each to 700C. This and hydrogen evolution curves indicated 2 principal reactions: formation of KBS_2 at 230-300C: $KBH_4 + 2S \longrightarrow KBS_2 + 2H_2$(1), and thermal decomposition of the borohydride, $KBH_4 \longrightarrow K + B + 2H_2$(2). The most pure KBS_2 was obtained in highest yield when the $S:KBH_4$ molar ratio was 2. The deviation from theoretical in the yield of H_2 when either component was used in excess of this ratio indicated reactions other than (I). The series of thermal effects noted in the tempera-

Card 1/2

L 34499-65

ACCESSION NR: AP5002795

ture range between the beginning of reaction (1) and the beginning of the thermal decomposition of KBH_4 was attributed to phase transformations involving participation of the reaction product KBS_2 and excess reactants -- KBH_4 when S is in the 0--66.7 at.% range, and S when present in amounts above 66.7 at.%. Orig. art. has: 7 figures, 3 equations, and 2 tables.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry, Academy of Sciences SSSR)

SUBMITTED: 01Jul63 ENCL: 00 SUB CODE: GC

NR REF SOV: 004 OTHER: 002

Card 2/2

[illegible], N.N.; [illegible], L.L.; [illegible]

Reactions between [illegible] and nickel chloride. [illegible]

[illegible]

1. Institut [illegible] im. N.S. Kurnakova AN SSSR. Submitted [illegible]

L 43751-65 EPF(c)/EPA(s)-2/EWT(m)/EWP(b)/EWP(e)/EWP(t) Pr-4/Pt-7 IJP(c)
JD/JG
ACCESSION NR: AP5008478 S/0078/65/010/003/0583/0587

AUTHOR: Sterlyadkina, Z. K.; Kryukova, O. N.; Mikheyeva, V. I. 36
B

TITLE: Reaction of sodium borohydride with sulfur

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 3, 1965, 583-587

TOPIC TAGS: sodium borohydride, potassium borohydride, sulfur, hydrogen sulfide, hydrogen, sodium borosulfide, sodium borosulfide production, gasometric analysis, thermographic analysis, chemical analysis

ABSTRACT: The reaction of sulfur with sodium borohydride has been studied to determine the production conditions for sodium borosulfide and hydrogen. The experiments are carried out with $NaBH_4$—S mixtures heated to 750C and the results are compared with those obtained for reactions of KBH_4—S mixtures. The thermographic, gasometric, and chemical analyses of the $NaBH_4$—S mixtures show two basic reaction trends, viz., formation of sodium borosulfide and hydrogen, and thermal decomposition of nonreactive sodium borohydride proceeding at elevated temperatures in mixtures with higher $NaBH_4$ content. The formation of sodium borosulfide takes place at a lower temperature (225-230C) than the formation of potassium borohydride

Card 1/4 2

L 43751-65
ACCESSION NR: AP5008478

(230-250C) and is accompanied by more side reactions, particularly the formation of hydrogen sulfide. The experimental results are given in Tables 1 and 2 of the Enclosure. The data obtained make it possible to assume that solid solutions of sodium borosulfide with excess hydrogen sulfide are formed from sodium borohydride and sulfur mixtures. Orig. art. has: 3 formulas, 4 figures, and 2 tables.

ASSOCIATION: none

SUBMITTED: 22Sep63 ENCL: 02 SUB CODE: GC

NO REF SOV: 006 OTHER: 001

Card 2/4

STERLYADKINA, Z.K., KRYUKOVA, O.N., MIKHEYEVA, V.I.

Reaction of potassium borohydride with sulfur. Zhur. neorg. khim. 10 no.1:10-17 Ja '65. (MIRA 18:11)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova AN SSSR. Submitted July 1, 1963.

STERLYADKINA, Z.K.; KRYUKOVA, O.N.; MIKHEYEVA, V.I.

Reaction of sodium boron hydride with sulfur. Zhur. neorg. khim. 10 no.3:583-587 Mr '65. (MIRA 18:7)

GUTKOVSKIY, V.A., kand.tekhn.nauk (Orsha); STERLYAGOV, A.A.;
MIKLASHEVSKIY, S.N., insh. (Orsha)

Highly efficient utilization of steam locomotives. Zhel. dor. transp. 40 no.3:70-72 Mr '58. (MIRA 11:4)

1.Nachal'nik depo Orsha, Belorusskoy dorogi (for Sterlyagov).
(Locomotives)

STERLYAGOV, V.F.

Activities of technology clubs and workshops in schools. Fiz. v shkole 14 no.3:62-65 My-Je '54. (MLRA 7:7)

1. 569-ya srednyaya shkola, g. Moskva.
(Physics--Study and teaching) (Technology--Study and teaching)

STERLYAGOV, V.F.

Popular scientific literature on the properties of solids. Fiz. v shkole 15 no.3:85-86 My-Je '55. (MLRA 8:6)
(Bibliography--Solids)

STERLYAGOVA, G.V.

Tectonics of the southeastern sector of the Caspian Sea according to the data of marine seismic investigations. Razved. i prom. geofiz. no.51:11-23 '64. (MIRA 17:11)

KOZHOV, M.M., prof., doktor biolog.nauk; MISHARIN, K.I., dotsent, kand. biolog.nauk. Prinimali uchastiye: TOMILOV, A.A., kand.biolog.nauk; POPOV, P.F., kand.biolog.nauk; YEGOROV, A.G., kand.biolog.nauk; TUGARINA, P.Ya., kand.biolog.nauk; TYUMENTSEV, N.V., nauchnyy sotrudnik; ASKHAYEV, M.G., nauchnyy sotrudnik; NIKOLAYEVA, Ye.P., nauchnyy sotrudnik; KARTUSHIN, A.I., nauchnyy sotrudnik; STEHLYAGOVA, M.A., nauchnyy sotrudnik; KORYAKOV, Ye.A.; SPELIT, K.K., inzh.; ARTYUNIN, I.M., inzh.; OKUNEV, P.M.; SHNIPER, R.I., rabotnik; SHAFIROVA, A.S., red.; SOROKINA, T.I., tekhn.red.

[Fishes and commercial fishing in Lake Baikal] Ryby i rybnoe khoziaistvo v basseine ozera Baikal. Irkutskoe knizhnoe izd-vo, 1958. 745 p. (MIRA 12:4)

1. Sotrudniki Irkutskogo gosuniversiteta (for Misharin, Tomilov, Popov, Yegorov, Tugarina). 2. Sotrudnik Baykal'skoy limnologicheskoy stantsii Akademii nauk SSSR (for Koryakov). 3. Baykalrybtrest (for Spelit, Artyunin). 4. Gosplan Buryat-Mongol'skoy ASSR (for Shniper).
(Baikal, Lake--Fisheries)

STERMA, Franciszek

Technology and economics. Przegl techn no.20:3,4 20 My '62.

PROCESSES AND PROPERTIES INDEX

Method for measuring accurately the temperature of a metal surface in studies of heat transfer to boiling liquids. K. A. Bdyakov and L. S. Herman (Moscow Institute of Chem. Equipment Building). *Khim. Prom.* 1940, No. 11, 18-20.—For measuring temp. in hot aggressive liquids a steel tube (10-13 mm. diam.) was used, on the surface of which were cut grooves (1.0-1.2 mm. wide and 0.8 mm. deep). The sensitive ends of thermocouples were covered with a layer of a suitable varnish above the silk wrapper and were placed in the grooves. The grooves were filled with Sn; the tube now carrying the desired no. of thermocouples placed at various points was cleaned and electrolytically coated with a layer of the metal the heat transfer of which was to be studied. M. Hosch

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible], I. [illegible] Dist. [illegible]

Dissertation: "[illegible] Pattern Dilution of Caustic [illegible]." Moscow Inst of [illegible] Publish, 23 [illegible].

Source: Vechernyaya Moskva, [illegible], [illegible] (Project [illegible])

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

F

M

2973. APPLICATION OF METHOD OF DIMENSIONAL ANALYSIS TO APPEARANCE OF HEAT EMISSION DURING BOILING. Sterman, L. S. (Kotloturbostroenie, Mar.-Apr. 1948, (2), 9-11). Cand. Tech. Sci.

Determine influence of physical properties of liquids on their heat emission during boiling. Proposes a general equation for the flow of heat emission during boiling, based on the dependence of the coefficient of heat emission and on the specific heat of a stream under various pressures. The formula evolved is proved valid by comparing calculated with experimental values of other authors. Formulae and diagrams are included. (L).

Moscow Dept., Central Sci. Res. Boiler Turbine Inst. im. I.I. Polzunov

COMMON ELEMENTS

OPEN

MATERIALS INDEX

COMMON VARIABLES INDEX

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

2ND LETTER

AUTHOR INDEX

1ST AND 2ND LETTER

2ND AND 4TH ORDERS

1ST AND 3RD ORDERS